

## SECTION I. (AMENDMENTS TO THE SPECIFICATION)

1. On pages 14 and 15, the paragraph bridging between pages 14 and 15 has been replaced by the following new paragraph:

First, a silicon germanium region or layer 22 is grown on surface 20 where the germanium concentration is about 15 atomic% shown by curve portion 22. Next, the germanium precursor is turned off and the ethylene is turned on at a flow of 3 sccm to form silicon carbon. Curve portion 24 shows the concentration of carbon at  $2.42 \times 10^{20}$  atoms/cm<sup>3</sup>. The corresponding layer or region 24' is shown in Fig. 2. The above sequence is repeated to form silicon germanium regions 26, 30, 34, 38, and 42 and carbon regions 28, 32, 36, 40, and 44. A silicon germanium surface cap 46 was formed over carbon region 44. Layers 24, 28, 32 and 36 were epitaxial while layers 40 and 44 had carbon concentrations high enough to form polycrystalline regions. Silicon germanium layers 42 and 46 which are grown on silicon carbon layers 40 and 44 also shows polycrystalline regions associated with layers 40 and 44. The peak carbon concentration levels in regions 24, 28, 32 and 36 increases linearly with a linear increase in carbon precursor flow rate. Carbon regions 24, 28, 32, 36, 40 and 44 were grown at flow rates of ethylene of 3, 6, 9, 15, 25, and 35 sccm, respectively. Peak carbon concentrations of carbon regions 24, 28, 32, 36, 40 and 44 were  $2.42 \times 10^{20}$ ,  $4.97 \times 10^{20}$ ,  $8.07 \times 10^{20}$ ,  $1.46 \times 10^{21}$ ,  $1.94 \times 10^{21}$ , and  $2.0 \times 10^{21}$  atoms cm<sup>-3</sup>, respectively. The carbon regions 24', 28', and 32', 36', 40' and 44' and the respective adjacent silicon germanium regions 26', 30', and 34', 38', and 42', as shown in Figure 2, define interfaces 325, 327, 329, 331, and 333 therebetween, each of which is ~~are~~ characterized by an abrupt change in carbon concentration, for example, of more than  $1 \times 10^{18}$  atoms/cc over a layer thickness in the range from about 6Å to about 60Å. Further, carbon regions 24, 28, 32, 36, 40 and 44 each has an oxygen concentration which is less than  $1 \times 10^{17}$  atoms cm<sup>-3</sup> according to SIMS, or below the background level of the SIMS detection system. The low level of oxygen contamination is due to the low initial base pressure in the deposition reactor and the choice of a precursor suitable for the heterogeneous growth process where the

chemical reaction occurs on the growth surface. Ethylene as a precursor may be supplied from sources having other hydrocarbon mixtures such as ethane, methane, propane, butane, etc. Background ethylene levels as low as 450 PPM in hydrocarbon mixtures will function as a carbon precursor. In Fig. 2, prime reference numbers show layers corresponding to the curve portions with the same reference numbers in Fig. 1.